AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of monitoring status of a system component in a processing system for processing semiconductor substrates, the system component being different than the semiconductor substrates processed in the processing system, the method comprising:

exposing a the system component to a reactant gas during a process, wherein the system component consists of a material selected from quartz, Al_2O_3, SiN, or SiC, and wherein the reactant gas is capable of etching the system component material to form an erosion product thereof;

monitoring the processing system for release of the erosion product during the process; and

stopping the process when the monitoring indicates release of the erosion product at a threshold value.

2. (Original) The method according to claim 1, wherein the exposing comprises the system component being at least one of a process tube, a shield, a ring, a baffle, a wall, a protective coating, an injector, a substrate holder, a liner, a pedestal, a cap cover, an electrode, and a heater.

3.-4. (Canceled)

5. (Original) The method according to claim 1, wherein the exposing comprises the system component having a material deposit thereon, and wherein the process is a cleaning process for removing the material deposit from the system component.

6. (Original) The method according to claim 1, wherein the exposing comprises the system component having a material deposit thereon containing at least one of Si, SiGe, SiN, SiO_2,

doped Si, HfO_2, $HfSiO_x$, ZrO_2, and $ZrSiO_x$, and wherein the process is a cleaning process for removing the material deposit from the system component.

7. (Original) The method according to claim 1, wherein the process comprises at least one of a chamber cleaning process, a chamber conditioning process, a substrate etching process, and a substrate film formation process.

8. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing a halogen-containing gas for cleaning the system component during a chamber cleaning process.

9. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing at least one of ClF_3, F_2, NF_3, and HF for cleaning the system component during a chamber cleaning process.

10. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing at least one of a silicon-containing gas and a nitrogen-containing gas for conditioning the system component during a chamber conditioning process.

11. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing at least one of dichlorosilane and NH_3 for conditioning the system component during a chamber conditioning process.

12. (Currently Amended) The method according to claim 1, wherein the exposing comprises the reactant gas containing a halogen-containing gas for etching ~~a~~ substrates during a substrate etching process.

13. (Currently Amended) The method according to claim 1, wherein the exposing comprises the reactant gas containing HF for etching a substrates during a substrate etching process.

14. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing at least one of a silicon-containing gas and an nitrogen-containing gas for depositing a film during a substrate film formation process.

15. (Original) The method according to claim 1, wherein the exposing comprises the reactant gas containing at least one of NO and tetraethyl orthosilicate for depositing a film during a substrate film formation process.

16. (Original) The method according to claim 1, further comprising operating the processing system at a temperature between about 100°C and about 1000°C during the exposing.

17. (Original) The method according to claim 1, further comprising operating the processing system at a chamber pressure between about 10mTorr and about 760Torr during the exposing.

18. (Original) The method according to claim 1, wherein the system component includes quartz, and further comprising operating the processing system at a chamber pressure of about 200mTorr to about 760 Torr and a temperature of about 200°C to about 800°C during the exposing.

19. (Canceled)

20. (Original) The method according to claim 1, wherein the monitoring comprises using an optical monitoring system to detect light absorption of the erosion product.

21. (Previously Presented) The method according to claim 20, wherein the monitoring further comprises determining if the intensity level of the light absorption has reached the threshold value.

22. (Canceled)

23. (Original) The method according to claim 1, wherein the monitoring comprises using a mass sensor to detect a mass signal from the erosion product.

24. (Previously Presented) The method according to claim 23, wherein the monitoring further comprises determining if an intensity level of the mass signal has reached the threshold value.

25-29. (Canceled)

30. (Previously Presented) The method according to claim 1, wherein the system component consists of quartz, SiN or SiC and the reactant gas comprises a halide-containing gas whereby the exposing forms a silicon halide erosion product, and wherein the monitoring comprises monitoring release of the silicon halide erosion product.

31. (Original) A method of monitoring status of a system component in a processing system for processing semiconductor substrates, the system component being different than the semiconductor substrates processed in the processing system, the method comprising:

forming a protective coating on ~~a~~ the system component;

exposing the protective coating to a reactant gas during a process, wherein the reactant gas is capable of etching the protective coating to form an erosion product;

monitoring the processing system for release of the erosion product during the process to determine status of the system component; and

based upon the status from the monitoring, performing one of the following: (a) continuing the exposing and monitoring; and (b) stopping the process.

32. (Original) The method according to claim 31, wherein the forming a protective coating comprises forming at least one of SiN, SiC, SiO_2, Y_2O_3, Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3, DyO_3, SiO_2, MgO, Al_2O_3, ZnO, SnO_2, and In_2O_3.

33-44. (Canceled)